THE ANNUAL REPORT

OF THE

DYKING COMMISSIONER

•FOR THE YEAR ENDING DEC. 31, 2003•

SUBMITTED TO:

The Hon. **Steve Ashton**

Minister

Water Stewardship

SUBMITTED BY:

R. Hay P. Eng.

Dyking Commissioner

104-05604/

Manitoba

Water Stewardship

Water Branch
Box 19 – 200 Saulteaux Crescent
WINNIPEG MB R3J 3W3
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May 11, 2004
File: 11.1.5

The Honourable Steve Ashton
Minister
Manitoba Water Stewardship
Room 333 Legislative Building
450 Broadway Avenue
WINNIPEG MB R3C 0V8

Dear Sir:

I have the privilege to submit, herewith, the Annual Report of the Dyking Commissioner for 2003 as required under Section 13 of The Dyking Authority Act.

The annual report covers the appraisal of the Greater Winnipeg Dyking System and ancillary Pumping Stations for the 2003 calendar year, to determine its adequacy to provide flood protection for the City of Winnipeg. This year's report is being submitted past the normal deadline of April 1st due to reporting and printing delays.

As Commissioner, I had considered the current level of maintenance of the system to be satisfactory and, given the initial forecast of low spring run-off conditions, had not viewed a delay in the production of the annual report for 2003 as significant. However, a record March rainstorm over the weekend of March 27 and 28th which fell on snow-covered ground resulted in fast spring run-off over the lower Red River Valley. The flood forecast changed virtually overnight from no significant flood potential to main stem river levels approaching those reached in 2001. The rapid melt was further complicated by the delayed river-ice break-up and movement. This past spring's freshette served to remind us all of Nature's ability to surprise! The report for 2004 will describe in detail the flood operations undertaken this year.

Recommendations are included on page 9 of the Report for 2003. Please note that the Act does not require this report to be tabled in the Legislature.

Yours truly,

R. Hay, P. Eng.
Dyking Commissioner

RIAH/jb

Attachment

THE ANNUAL REPORT

OF THE

DYKING COMMISSIONER

FOR THE YEAR ENDING

DECEMBER 31, 2003

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1 Acknowledgements

Evaluation of the adequacy of the dyking system is based mainly on reports provided by the staff of the City of Winnipeg and the University of Manitoba. Their cooperation in providing annual reports and technical advice is gratefully acknowledged.

2 The Dyking Authority Act of 1952

The Dyking Authority Act D110, passed in 1952, was intended to ensure that the dykes and pumping stations constructed subsequent to the 1950 flood were maintained in a state of readiness to combat future floods. In fact, the full title of the original Act was *An Act to Provide for the Maintenance of Dykes and Pumping Stations in Greater Winnipeg*.

While authority and control over dykes and pumping stations was vested with the city or rural municipality in which they were situated, provision was made for the appointment of a Dyking Commissioner with powers to inspect dykes and pumping stations and to order work to be undertaken to maintain an integrated system of flood defence as well as to establish the location of the line of defence.

The Dyking Commissioner is required to "before the first day of April in each year, make to the Minister a report on the administration and carrying out of the provisions of this Act during the year ending on the thirty-first day of December next preceding the making of the report, and on the condition of the dykes, pumping stations, and pumps, and their sufficiency for the purposes for which they were constructed or installed."

3 Changes Since 1952

Several major changes have taken place since the passing of The Act in 1952.

1. Major flood control projects affecting river water surface levels in the City of Winnipeg have been completed, namely, the Red River Floodway in 1968, the Assiniboine River - Portage Diversion and Shellmouth Dam in the early 1970's.

2. Urban development has taken place beyond the lines of flood defence previously established.

3. The five cities and two rural municipalities subject to The Act have been replaced by a single city.

4. Under the Canada-Manitoba Flood Damage Reduction Agreement, Interim Flood Risk Maps designating Flood Risk Areas and Floodways in the City of Winnipeg were produced in 1980 and flood protection criteria for developments dictated by flood levels were defined.

5. The City of Winnipeg Act was amended in 1981 to recognize the designated flood risk areas and to establish revised criteria for development in flood prone areas.

6. As of January 1, 1992 the Designated Floodway Fringe Area Regulation 266/91 requires the Primary Dyke to be located, designed and constructed to the standard and elevation approved by the City Administrator and the Dyking Commissioner .

4 Current Issues and Actions

Changes to legislation and the dynamics of urban development give rise to issues from time to time. Issues currently being addressed include:

1. Flood defence lines continually requiring revisions to accommodate the effect of flood control/protection works and the impact of on-going urban development.

   The City is continuing to review the Primary Line of Defence (PLD) for re-designation and extensions. Plans are prepared and submitted to the Dyking Commissioner for approval. Proposals have been reviewed with the Commissioner as noted in the City of Winnipeg report in Appendix D. The City has completed digital mapping of the 115 kms of primary dykes and maintains a comprehensive set of drawings/plans. This database has been incorporated within the City's new Flood Protection System -Operation and Maintenance Manual.

2. Since the 1997 "Flood of the Century", a number of initiatives have been undertaken with respect to enhancing the level of flood protection for the City. All have implications for future administration of The Dyking Authority Act.

   i) The International Joint Commission (IJC) initiated comprehensive studies of the City's flood defence systems that identified vulnerabilities and proposed strategies for flood risk reduction. The final report, entitled " Living with the Red", was issued in December of 2000. The Report contained several conclusions of which the following perhaps bears most significantly on the future of the Primary Dyking System in Winnipeg: "Under flow conditions similar to those experienced in 1997, the risk of a failure of Winnipeg's flood protection infrastructure is high. Public safety requires that the city, province and Canadian federal governments focus immediate attention on designing and implementing measures to further protect Winnipeg."
   - In April of 2003, the governments of Canada and Manitoba announced an Agreement to provide up to $160M towards the floodway Expansion Project. On April 30, 2003, Mr. Ernie Gilroy was appointed Chief Executive Officer of the Manitoba Floodway Expansion Authority. This Crown agency was established as the body responsible for bringing to fruition the Floodway Expansion project. An Application for Environmental Licensing of the project was submitted in July and by December senior executive had been appointed, and pre-design engineering and environmental assessment consultants retained. An additional $80M in funding was announced by both senior levels of government.

-IJC Recommendation #7- "The Primary Dyking system for Winnipeg should be raised where economically feasible to the elevation specified in existing legislation."
There remain several locations within the City where the designated primary line of defence is slightly below the Flood Protection Level for short distances. The City has identified these reaches for permanent upgrading as programming allows. Although the proposed Floodway Expansion Project includes these upgrades, a funding agreement had not been finalized with the City of Winnipeg as of December 2003.

-IJC Recommendation #11- "The City should give immediate high priority to the preparation of a detailed emergency preparedness and response manual".
Refinement of the comprehensive Flood Activity / Emergency Operations Manual for the City's flood protection infrastructure continued. It had been hoped to "test" certain operating features of the manual during the 2002 spring freshette but the extraordinarily low run-off precluded river levels of sufficient magnitude to conduct effective testing. Similarly, in the spring of 2003, peak water levels did not even reach normal summer levels. As a result the final commissioning of the manual was further postponed until 2004. Details of the 2004 spring run-off operation will be included in next year's report.

ii) The City entered into an agreement with both the federal and provincial governments to provide enhanced secondary flood protection works (i.e. on the river side of the Primary Line of Defence). The agreement, whose term has been extended to March 31, 2005, provides a total of $11.1 M for upgrades to both individual property site flood protection and community secondary ring dykes within the City Limits. The Dyking Commissioner is a member of the Technical Advisory Committee that co-ordinates the implementation of the agreement, as several of the proposed works lie within the designated Floodway Fringe of the Red River. As of December 2003, several individual residence projects and several condominium and community ring dyke projects were completed. The construction of an improved secondary dyke around the Elm Park Peninsula for the residents of Kingston Row/Crescent and an improved permanent secondary dyke for the residents of Kilkenny Drive North were completed. Work was 80 percent complete on two permanent Secondary Dyke projects; the first protecting a dozen residences on Lord Avenue and the second, a shorter permanent Secondary Dyke protecting several residences on North Drive.

5 Inspection of Facilities

The City of Winnipeg and the University of Manitoba have ongoing inspection and maintenance programs. The programs for 2003 are described in detail in the reports under Appendix D.

Recognition is hereby acknowledged that the City and University apply appropriate levels of care to the maintenance of their respective flood protection facilities.

6 Reports by the City of Winnipeg and the University of Manitoba

A questionnaire was sent to the City and to the University requesting information for the purpose of preparing this report. A copy of the request and questionnaire is included in Appendix C. The replies to the questionnaire, included in Appendix D, indicate that regular monitoring, detailed inspections and necessary maintenance work was carried out.

7 Primary Dyking System Report

1. Pumping Stations and Gates

Similar to 2002, operational activities coincident with spring run-off flow conditions were not required in 2003.

Normal annual maintenance activities were undertaken on the pumping stations and gate chambers in 2003. The City's Water and Waste Department continued to upgrade the lift station alarm and monitoring systems, and both the flap style and positive gate configurations at the automated stations.

The University of Manitoba noted repairs to the No. 5 sewer outfall pipe were completed.

The specific details of these programs are outlined in the attached Appendix D.

2. Primary Line of Defence

Operation: No dyke closures or dyke raising operations were required in 2003 with respect to the primary dykes. Operations were confined to normal gate closures and sewer pumping.

Administration: Updated drawings are included in Appendix B indicating the most recent authorized revisions to the Primary Line of Defence within the City of Winnipeg.

8 Additional Works Constructed

Modifications to the Primary Line of Defence in the vicinity of Waterfront Drive and the new Provencher Bridge and its adjacent pedestrian bridge were initiated with the completion of the construction of earthen dykes. Final grading and sodding of the dykes remains to be undertaken in 2004.

9 Recommendations

It is recommended the City of Winnipeg continue its efforts to complete all necessary rehabilitation and upgrading to the primary dikes, pump stations, gates and outfalls through the primary dike, to improve the integrity of the system. The proposed $ 660 M Floodway Expansion project includes an estimated $ 110 M in expenditures related to upgrading various components of the Primary Dyking system.

It is recommended the City of Winnipeg, with the assistance of the Dyking Commissioner, ensure that permanent modifications to the secondary dykes do not detrimentally impact the Designated Floodway of the Red River channel, the primary dykes or local drainage outlets.

10 Appendix A

City of Winnipeg
List of Flood Pumping Stations and Gate Chambers

CITY OF WINNIPEG FLOOD CONTROL FACILITIES - 2002

PERMANENT FLOOD PUMPING STATIONS:

1 Newton
2 Linden
3 Jefferson
4 Polson
5 Monroe
6 St. John
7 Hart
8 Selkirk
9 Syndicate
10 Archibald Underpass
11 Hawthorne
12 Galt
13 Bannatyne
14 Assiniboine
15 Colony
16 Cornish
17 Aubrey
18 Clifton
19 Mission
20 Laverendrye
21 Dumoulin
22 Despins
23 Mayfair
24 Ash
25 Marion
26 Jessie
27 Metcalf
28 Baltimore
29 Mager Drive
30 Cockburn
31 Larchdale
32 Turnbull Drive
33 St. James Underpass
34 Roland

GATE CHAMBERS:

Rainbow Stage
St. Mary's Road
Armstrong
Ft. Rouge Park
Maryland
Renfrew
St. Norbert X-Kalay
Eccles (new 1200mm SRS)
Wildwood Golf Course
X-Kalay Drive Culvert
Darcy @ Glengarry
Crane @ Southdrive (WWS)
Kilkenny N. of Radcliffe
N.E. Interceptor
Ruby
Pembina & Crane
Aubrey (Storm)
Kingston Row CSO
Trappiste @ Pembina
Assiniboine E.
Assiniboine W.
Burrows
Calrossie @ Riverside
Ducharme @ Villineuve
Eccles (old 750mm SRS)
Kilkenny & Rice
Lombard
McDermot
Spence
Somerset @ Riverside
Bredin Drive
Canora
Guay

Churchill Drive Underpass
Churchill High School
Bredin Drive
Chataway
Deer Lodge Place
Douglas Park
Ferry Road
Kildonan Park
Lemay & Lord
Olive Street
Conway
Cranestorm
Donald Street
Dowker Outfall
Osborne @ St. Vital Bridge G.C.
Hargrave Street
Inkster
Kennedy
Kingston Row Underpass
Riviera Crescent Outfall
Water Avenue
Clarence & Hamlin
Colony
Dieppe
Hawthorne
Parkside 30"
Parkville
Sommerville & Beaumont
St. Boniface Hospital MH
Kildare
Riverdale
McLeod Cr. & Kildonan Cor.
Donacaster

Dunham Road
Plaza Drive
Pulberry
Seel & Fennel
Darcy 43 m N. of Glengarry
Glasgow
Summerview Lane
South St. Vital Ret. Basin
N. St. Boniface LDS
Shier Drive
Barker
Waverley Lakes
Arlington
Calrossie Outfall
Conway
Moore
Strathmillan
Wexford
Killarney
Rowandale
Ridgedale
River Point Pl.
Clifton Overflow (Omands Cr.)
Forks
Heritage
N.E. Interceptor Manhole
King Edward Storm
Kingston Row @ Elm Park
Riverbend 90"
Tylehurst
Lot 16 Gate
Fermor

11 Appendix B

City of Winnipeg Maps - Showing District Boundaries,
Flood Defence Lines and Pumping Station Locations

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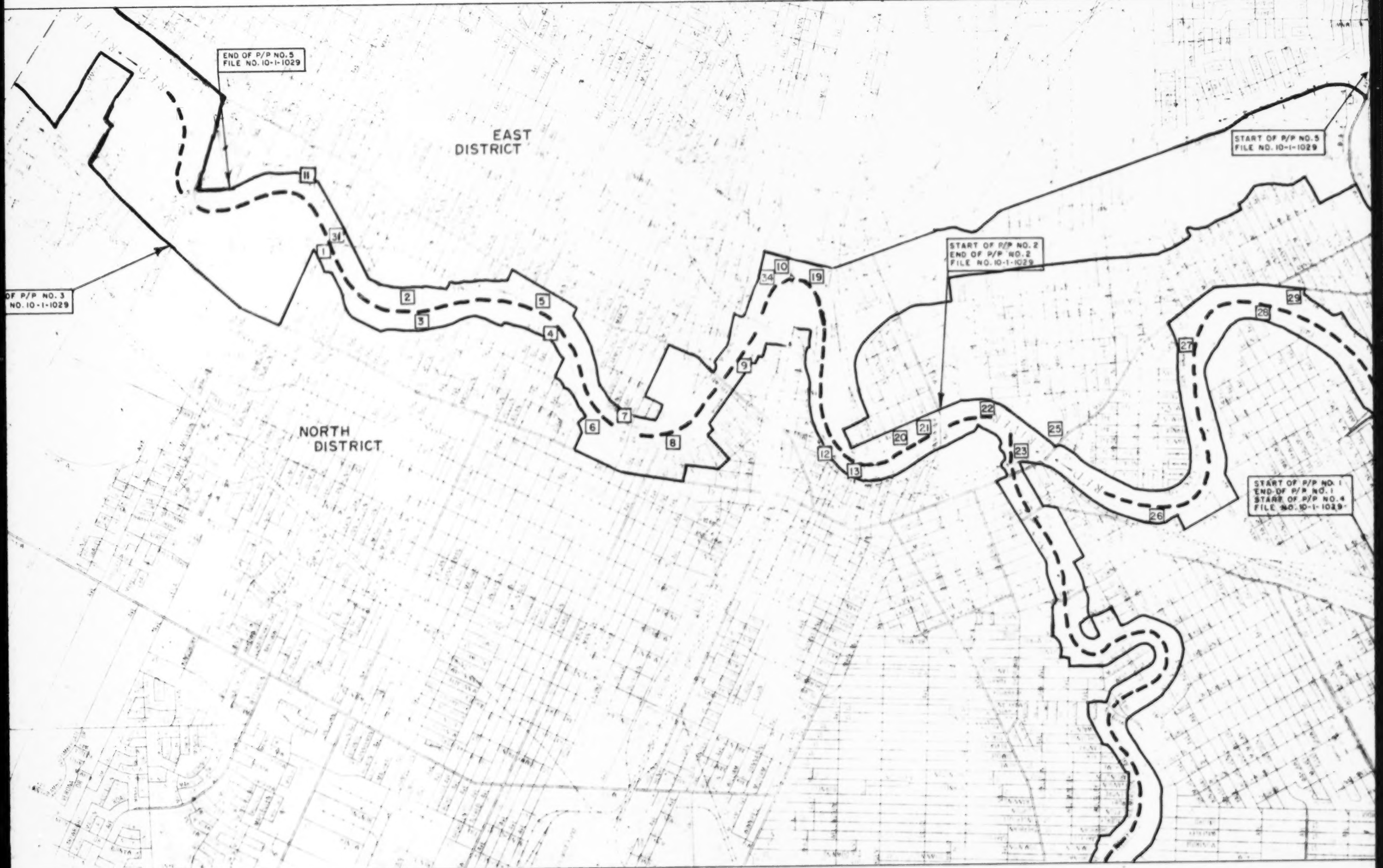
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EAST
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30
SOUTH
DISTRICT

WATER BRANCH

CITY OF WINNIPEG PRIMARY DYKE

DISTRICT BOUNDARIES — —

(PLD) FLOOD DEFENCE LINES ——

PERMANENT FLOOD PUMP STATIONS □

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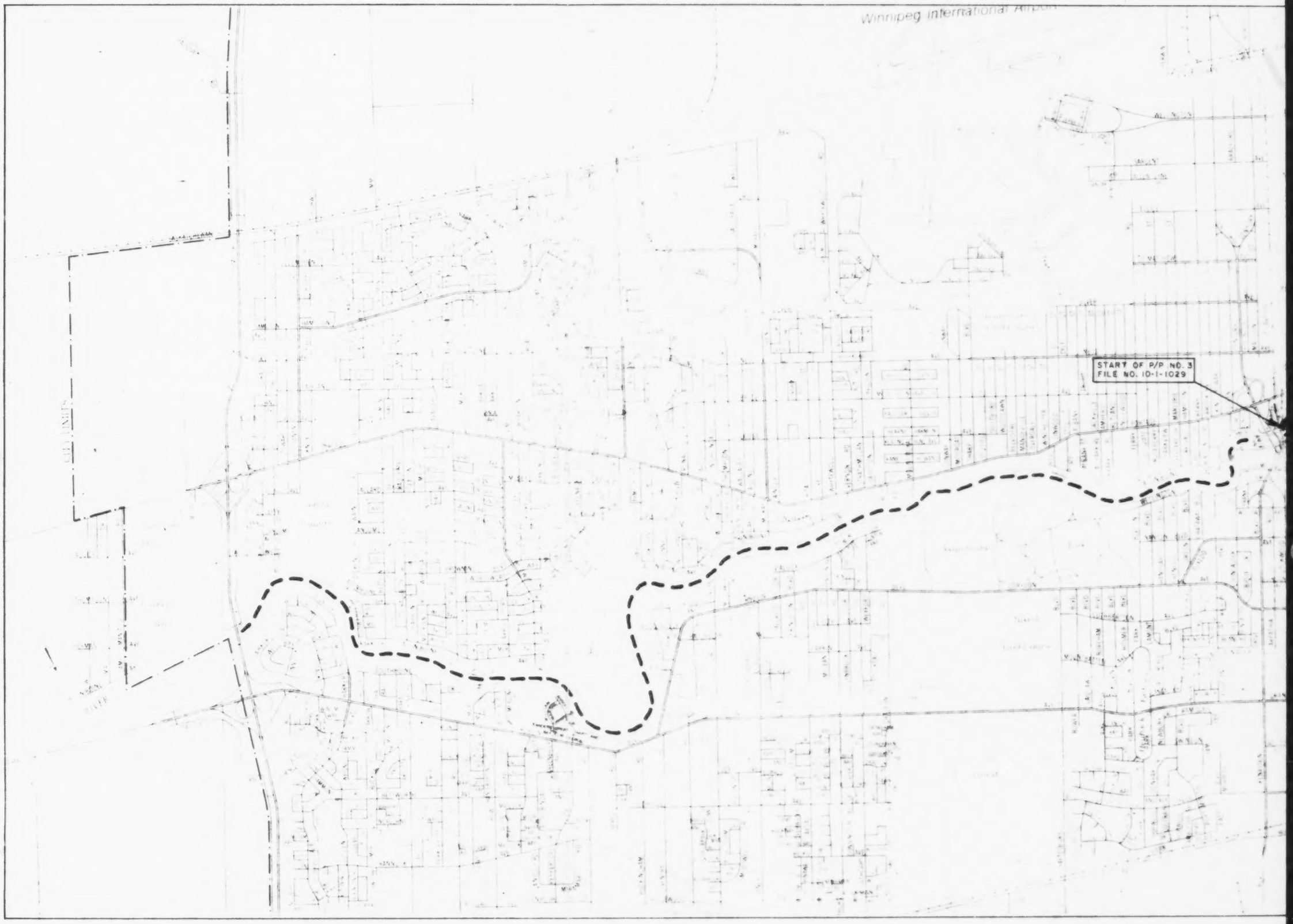
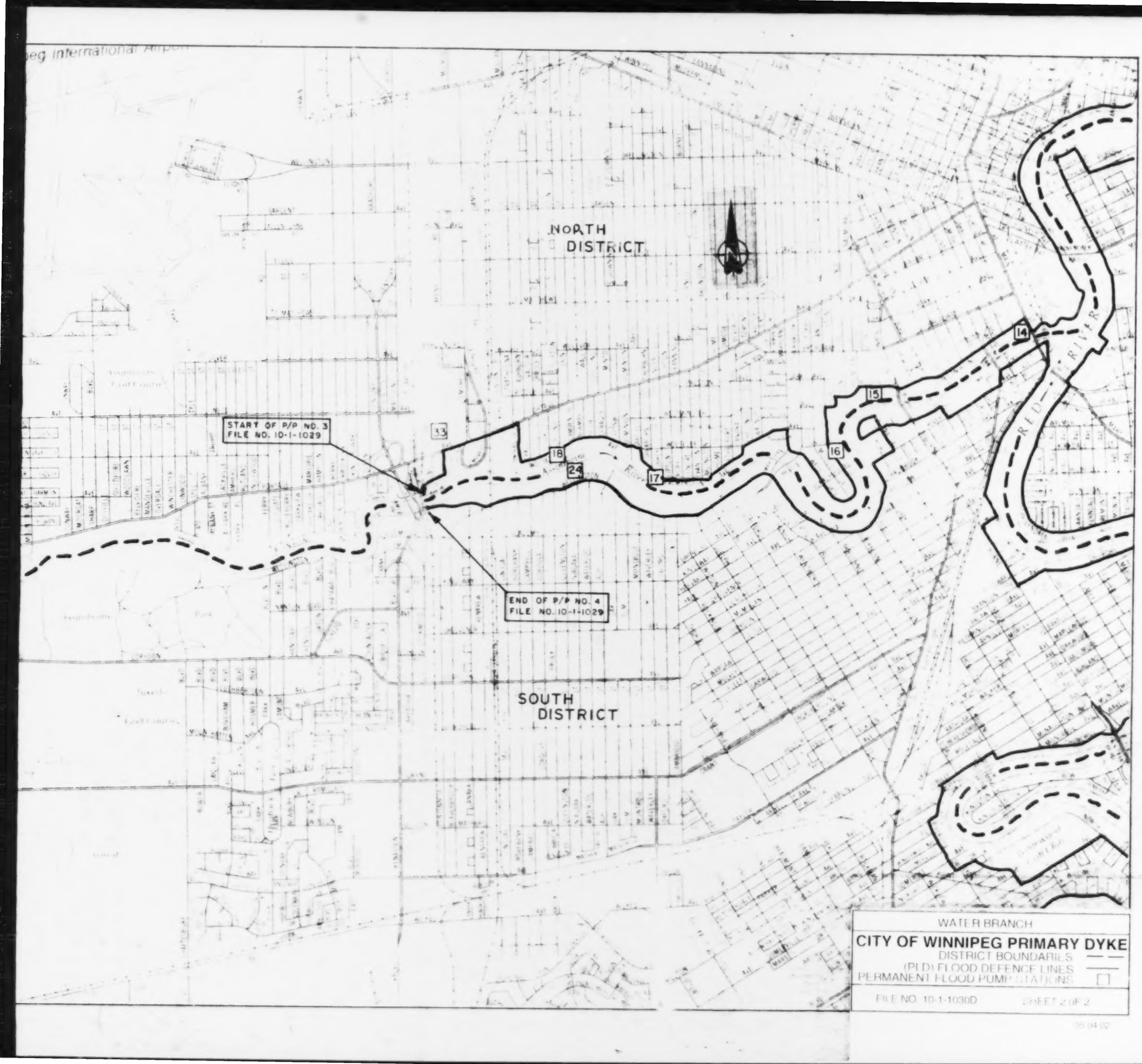
Winnipeg International Airport

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RED RIVER
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WATER BRANCH
CITY OF WINNIPEG PRIMARY DYKE
DISTRICT BOUNDARIES
(PLD) FLOOD DEFENCE LINES
PERMANENT FLOOD PUMP STATIONS
FILE NO. 10-1-1030D
SHEET 2 OF 2

12 Appendix C

Copy of Questionnaire to:

The City of Winnipeg
and
The University of Manitoba

Manitoba

Water Stewardship

Water Branch
Box 19 – 200 Saulteaux Crescent
WINNIPEG MB R3J 3W3
Phone: (204)945-6496
Fax: (204)945-7419

December 8, 2003

File: 11.1.5

Mr. Barry McBride
Director, Water & Waste Department
The City of Winnipeg
101 – 1155 Pacific Avenue
WINNIPEG MB R3E 3P1

Dear Mr. McBride:

RE: Dyking Commissioner's 2003 Annual Report

The Dyking Authority Act, Section 15, requires that:

> "The commissioner shall, before the first day of April in each year, make to the minister a report on the administration and carrying out of the provisions of this Act during the year ending on the thirty-first day of December next preceding the making of the report, and on the condition of the dykes, pumping stations, and pumps, and their sufficiency for the purposes for which they were constructed or installed."

To assist in making this report I request that you supply me with a report on the dyking system and pumping stations under your jurisdiction for the 2003 calendar year **by March 1, 2004**. Please provide your report in the same format as was utilized last year.

Yours truly,

Rick Hay, P. Eng.
Dyking Commissioner

cc: Steven D. Topping, Director
Water Branch

Enclosure
RIAH/jb

Manitoba

Water Stewardship

Water Branch
Box 19 – 200 Saulteaux Crescent
WINNIPEG MB R3J 3W3
Phone: (204)945-6496
Fax: (204)945-7419

December 8, 2003

File: 11.1.5

Ms. Debbie McCallum
Associate Vice-President
Ancillary & Physical Resources
208 Administration Building
University of Manitoba
WINNIPEG MB R3T 2N2

Dear Ms. McCallum:

RE: Dyking Commissioner's 2003 Annual Report

The Dyking Authority Act, Section 15, requires that:

> "The commissioner shall, before the first day of April in each year, make to the minister a report on the administration and carrying out of the provisions of this Act during the year ending on the thirty-first day of December next preceding the making of the report, and on the condition of the dykes, pumping stations, and pumps, and their sufficiency for the purposes for which they were constructed or installed."

To assist in making this report I request that you supply me with a report on the dyking system and pumping stations under your jurisdiction for the 2003 calendar year **by March 1, 2004**. Please provide your report in the same format as was utilized last year.

Yours truly,

Rick Hay, P. Eng.
Dyking Commissioner

cc: Steven D. Topping, Director
Water Branch

Enclosure
RIAH/sl

13 Appendix D

Replies to Questionnaire

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1.0 THE CITY OF WINNIPEG FLOOD CONTROL REPORT

The City of Winnipeg, Water and Waste Department is responsible for the Primary Line of Defence (primary diking system) and the flood pumping stations within the City of Winnipeg. The following report summarizes the operations of these facilities for the 2003 calendar year.

Throughout the year, the Water and Waste Department's Collection System crews inspected all flood pumping stations once per week. All stations were checked for temperature, basement flooding and vandalism. All problems were repaired as soon as possible.

Commencing in the month of February, all stations were given a complete maintenance check to ensure that these facilities were ready for operation when required. This annual servicing includes:

i) lubricating and operating all positive gates on sanitary, storm and combined sewers;

ii) inspection of all wet well floats;

iii) lubricating and operating of all pumps and equipment within the station;

iv) inspection of all electrical main boxes, starter boxes and motors;

v) inspection of all high voltage transformers and equipment;

vi) inspection of automated control system, where installed.

The Red River's behaviour in 2003 was unusual in that no spring high water event was experienced. Throughout the remainder of the year, the Red River did not exceed water levels greater than 8.0 feet above City datum at James Avenue, therefore no flood activities were required or recorded

During October all of the flood pumping stations were winterized in conjunction with the routine weekly checks. Thirty (30) of the City's thirty-four flood pumping stations are now automated. The automated stations all require activation at a level equivalent to or below 20.0 feet at James Avenue Datum. Conversion and expansion of the City's flood activity manual into a digitized electronic format continued in 2003, and real-time monitoring of the Assiniboine River was installed at five locations. The Water and Waste Department is continuing with its program to evaluate and upgrade the configuration of the flap and positive gates at the automated stations.

The Water and Waste Department has continued in its efforts to upgrade the information provided in the Flood Control Manual.

2.0 EXTENSIONS AND REDESIGNATIONS OF THE PRIMARY LINE OF FLOOD DEFENCE

2.1 East Area

2.1.1 Evans Street Dike - Land acquisition of private lands along the west Seine River bank is essentially complete. Land acquisition negotiations are on-going for private lands along the east Seine River bank. Once secured, the lands will accommodate relocation of the Seine River at a bend, and stabilization and reconstruction of Evans Street from Gareau Street to Deniset Street for its proposed designation as a Primary Line of Defence. Some 200 dwellings and several sewer overflows will be added to the City's flood protection system through this initiative.

2.1.2 Normand Park Development Dike - The most recent extension of the primary dike along the north limit of the Normand Park Development was completed in December, 1989; and deficiencies were rectified in November, 1992. Certificates were issued for the dikes in the last two of the five developments. In December 1999, the Water and Waste Department requested the Diking Commissioner's approval-in-principle for designation of the dike as per the drawings described in Section 3.0.

The Diking Commissioner granted interim authorization for this section of dike to be utilized as a line of defence on May 24, 2002 until such time as the dike can be raised to FPL with a minimum width of 9.2 m at that elevation.

2.2 North Area

2.2.1 The Forks Development Dike - A leakage test on the chamber was performed and passed on February 21, 1992. Deficiencies regarding modifications to the top of the structure are still outstanding. The Water and Waste Department will be proceeding with application for redesignation of the dike once final acceptance of the gate chamber is issued.

On June 18, 1993, the Water and Waste Department requested approval-in-principle of a dike realignment as a result of a proposed plaza/archaeological dig site at the Forks. On July 21, 1993, the Diking Commissioner granted approval-in-principle for this relocation. The project proceeded as a plaza in 1997 without the archaeological dig site. Therefore, the primary dike alignment was not relocated. Redesignation with this portion of the dike will be part of the whole Forks Development, as above.

2.2.2 Timber Crib Dike – The majority of this dike has been replaced by a new earthen dike, which forms part of the extension of Pioneer Boulevard North of the Provencher Bridge. This work proceeded in late 1998 as part of the construction related to the new baseball facility on the North side of Water Avenue. The Acting Diking Commissioner granted approval for realignment of the Primary Line of Defence on September 14, 1998.

Plans to remove the remaining portion of the Timber Crib Dike and replace it with an

earthen dike, were drafted as part of the Provencher Bridge Project.

2.2.3 Dike along former Winnipeg Railway – Plans to relocate the primary dike from Lombard Avenue to Higgins Avenue, were drafted as part of the proposed Waterfront Drive Project. However, the alignment of the dike and the dike top elevation are generally maintained.

2.3 South Area

2.3.1 St. Norbert Daycare Dike - The St. Norbert Daycare proposed the installation of playground equipment on a portion of the primary dike. The Water and Waste Department provided a drawing showing where the new dike is to be realigned to by-pass equipment. Upon completion of all drawings, this Department will proceed with application for redesignation.

2.3.2 St. Norbert School Dike - During the 1997 Spring Flood event, a permanent earth dike was constructed through the Seine River School Division property extending from the existing dike South of the St. Norbert Cemetery at the East to Rue Campeau to the West. In December 1999, the Water and Waste Department requested the Diking Commissioner's approval-in-principle for designation of the dike as per the drawings described in Section 3.0.

The Diking Commissioner did not approve the designation of this section as the primary dike on May 24, 2002, as one section does not meet Flood Protection Level.

3.0 PRIMARY LINE OF DEFENCE (PLD) MAPPING

The Water and Waste Department has completed a project initiated in 1986 to produce plan/profile drawings of the City's 115 kilometres of primary dikes. These drawings update the plan/profiles prepared by the Provincial Water Control and Conservation Branch in 1967 in a modern, revisable format. The drawings also identify deficiencies in the diking system, location of manholes, pipes, catch basins, outfalls and control chambers which breach the dike, and areas where the dike must be realigned to keep pace with new development. 119 plan/profile drawings at a scale of 1:2000 have been produced.

The project is divided into 7 drawing series corresponding to the different sides of the Rivers. The Series are described as follows:

- Series 100 contains 16 drawings covering the West side of the Red River from the Forks North to the City limits.

- Series 200 contains 8 drawings covering the North side of the Assiniboine River

from St. James Street East to the Forks.

- Series 300 contains 8 drawings covering the South side of the Assiniboine River from Kenaston Boulevard East to the Forks.
- Series 400 contains 28 drawings covering the West side of the Red River from St. Norbert North to the Forks.
- Series 500 contains 26 drawings covering the East side of the Red River from the Floodway North to the junction of the Seine River.
- Series 600 contains 16 drawings covering the West side of the Seine River from the Floodway North to the junction of the Red River.
- Series 700 contains 17 drawings covering the East side of the Seine and Red rivers from the Floodway North to the City limits.

Further to the recommendations of the Manitoba Water Commission Report (June 1998) and the subsequent comments by the Diking Commissioner (1998 Annual Report of the Diking Commissioner – Appendix E), the Water and Waste Department in December 1999, requested the Diking Commissioner's approval-in-principle for many of the proposed extensions/redesignations to the Primary Line of Defence described in Section 2.0. Most of these requests were granted by the Dyking Commissioner on May 24, 2002, as described in Section 2.0.

4.0 SECONDARY LINE OF DEFENCE (SLD)

The City of Winnipeg actively planned, prepared for and undertook specific flood protection activities as necessary in response to the high river levels and overland flooding in the Spring of 1997. For the "Flood of the Century," the City protected over 800 properties with temporary secondary dikes, most with 8.1 million sandbags and 50 locations with earthfill (600,000 m^3).

As a result of the Canada-Manitoba-City of Winnipeg Agreement on Secondary Diking Enhancements (November, 1999), $11.1 million has been allocated to undertake three initiatives related to permanent secondary dikes. These are:

1) community ring dike sites feasibility study ($400,000);
2) construction of community ring dikes ($6.3 million), and;
3) construction of flood proofing works at individual sites ($4.4 million).

The Community Ring Dike Sites Feasibility Study was completed in 2001. The first community ring dike to be completed was the Kingston Crescent/Row project. The Kilkenny Drive North project was completed and the Lord Avenue dike was substantionally completed in 2003. Several individual flood proofing projects were completed or underway in 2003.

The City of Winnipeg has also passed a "Secondary Dike By-law" that protects the integrity of existing permanent dikes and establishes a diking corridor at locations where temporary secondary dikes would be required in an emergency. The corridor prevents obstructions, such as decks or garages, which would impede the timely erection of a temporary dike.

5.0 FLOOD ACTIVITY / EMERGENCY MANUAL

The Water and Waste Department has engaged Professional Engineering Services for the preparation of an overall flood activity and emergency manual for the entire City of Winnipeg which will consolidate and update existing information and develop activities for portions of the City where activity manuals do not currently exist.

The intent of this project is to provide a detailed and comprehensive operations Flood Activity / Emergency Manual for all Combined and Separate Sewer Districts within the City of Winnipeg describing flood activities required such as gate monitoring, gate closures, activation of pumping facilities, installation and activation of temporary pumping facilities, raising primary dikes, erecting secondary dikes at various river stages to ensure proper and prompt action by staff to protect properties from overland and basement flooding for a water elevation equivalent to 25.8 feet at James Avenue Datum (i.e.- water level corresponding to the Flood Protection Level).

Work on this project was primarily completed by the end of 2003. Security, backup and hardware server installation will be completed by early 2004 for the 2004 spring flood event.

6.0 RESPONSES TO DIKING COMMISSIONER'S QUESTIONNAIRE

The following are the responses from the Public Works Department and the Water & Waste Department:

6.1 Engineering Division – Public Works Department.

6.1.1 For the Reporting Year.

a) There were no difficulties or problems encountered.
b) There were no maintenance or repairs carried out.
c) There were no new sewer outfall gate structures constructed for the reporting year.

d) Improvements and modifications carried out were as follows:

- Provencher Bridge – Constructed a clay dike on the north side of the new Provencher vehicular bridge and tied back into existing wood dike. Also constructed a clay dike between the new Provencher vehicular bridge and the new pedestrian bridge (Riel Esplanade).

- Waterfront Drive – Constructed a clay plug and dike on the north side of Pioneer Avenue from the Provencher vehicular bridge west to Waterfront Drive and then north on the east side of Waterfront Drive to the recently constructed land drainage outfall.

6.1.2 Proposed Plans for Future.

a) Continue monitoring of existing slope indicators on a rotating scheduled basis.
b) Complete landscaping of the new clay dikes built in 2003.

6.1.3 Riverbank Stability.

a) There was no evaluation of riverbank stability in critical areas.
b) Riverbank erosion is monitored by visual inspection at all river crossings on an annual basis. Erosion was unremarkable in 2003.
c) There were no remedial works undertaken or completed.

6.1.4 Availability and Location of Proposed Borrow Pits.

a) There was no change to the availability and location of proposed borrow pits.

6.2 Engineering Division - Water & Waste Department.

6.2.1 Dumoulin Flood Station – Work on the flap gate and sluice gate were completed to allow for automatic operation of the station.

6.3 Water Services Division - Water & Waste Department.

6.3.1 There were no difficulties or problems encountered with any sewer facilities with respect to high river levels

6.3.2 There were no repairs carried out on the sewer system to maintain or improve flood protection to the City.

6.3.3 There were no construction or upgrading projects on any of the sewer outfall structures.

6.3.4 There were no other modifications made to the sewer system or diking system.

UNIVERSITY OF MANITOBA | **Physical Plant**

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April 7, 2004

Mr. Rick Hay, P. Eng.
Dyking Commissioner
Water Resources Branch
Box 19 – 200 Sauteaux Crescent
Winnipeg, Manitoba
R3J 3W3

Dear Mr. Hay:

Subject: ***Dyking Comissioner's 2003 Annual Report***

The following is in response to the questionnaire for the Annual Report on the Primary Dyking Systems within the City of Winnipeg.

1. **2002 Calendar Year**

   a) Difficulties and problems encountered.

      None

   b) Maintenance and repairs carried out.

      Repairs completed to Outfall #5

   c) New Sewer Outfall Gate Structures constructed.

      None

   d) Improvements and modifications carried out.

      None

2. **Proposed Plans for Future**

   There are no further plans for new structures or modifications at this time.

a) Evaluation of river bank stability in critical areas.

There are no evaluation studies underway or planned at this time.

b) Monitoring erosion of river banks in critical areas.

Monitoring of riverbanks is conducted regularly at 13 river bank locations. There was no significant erosion detected during 2003.

c) Any remedial works undertaken or completed in the reporting year.

None

3. Availability and Location of Proposed Borrow Pits

No changes are suggested in the availability or location of proposed borrow pit for 2004.

Yours truly,

Brian J. Rivers
Director of Physical Plant

bjr/nl

cc: Mrs. D. McCallum, Vice President (Administration)
Mr. W. A. Simms, Associate Vice President (Administration)